

AMENDMENTS TO THE CLAIMS

Claims 1-47 (Cancelled).

48. (Currently Amended) A charge removing unit comprising:

a heating and cooling apparatus for contacting a rear face of a charge appearance semiconductor substrate so as to heat and cool the charge appearance semiconductor substrate, the rear face being opposite to a front circuit-formed face of the charge appearance semiconductor substrate, whereby the charge appearance semiconductor substrate develops an electric charge due to a temperature change; and

a controller operable to control said heating and cooling apparatus so as to cool the charge appearance semiconductor substrate in a manner to eliminate the electric charge;

wherein said heating and cooling apparatus includes a bump bonding stage for heating the charge appearance semiconductor substrate, and a cooling device for cooling the charge appearance semiconductor substrate in accordance with a cooling control by said controller.

Claim 49 (Cancelled).

50. (Currently Amended) The charge removing unit of claim-49 ~~48~~, wherein said cooling device includes a heat diffuser member for contacting the rear face of the charge appearance semiconductor substrate, a heating part detachably connected to said heat diffuser member for raising a temperature of said heat diffuser member, and a separator for separating said heat diffuser member and said heating part so as to allow cooling of said heat diffuser member.

51. (Previously Presented) The charge removing unit of claim 48, wherein said heating and cooling apparatus has a metal-plated portion located so as to contact the rear face of the charge appearance semiconductor substrate to improve heat conductivity between said heating

and cooling apparatus and the charge appearance semiconductor substrate and so as to remove the electric charge.

52. (Previously Presented) The charge removing unit of claim 48, wherein said controller is operable to control said heating and cooling apparatus so as to repeatedly perform a temperature decrease and a temperature increase of the charge appearance semiconductor substrate, in which a temperature increase width is smaller than a temperature decrease width.

53. (Currently Amended)) A charge removing unit comprising:

a heating and cooling apparatus for heating a charge appearance semiconductor substrate in a non-contact state with respect to the charge appearance semiconductor substrate, and for cooling the charge appearance semiconductor substrate after the heating, whereby the charge appearance semiconductor substrate develops an electric charge due to a temperature change; and

a controller operable to control said heating and cooling apparatus so as to cool the charge appearance semiconductor substrate in a manner to eliminate the electric charge;

wherein said heating and cooling apparatus includes a bump bonding stage for heating the charge appearance semiconductor substrate, and a cooling device for cooling the charge appearance semiconductor substrate in accordance with a cooling control by said controller.

54. (Previously Presented) The charge removing unit of claim 53, wherein said controller is operable to control said heating and cooling apparatus so as to repeatedly perform a temperature decrease and a temperature increase of the charge appearance semiconductor substrate, in which a temperature increase width is smaller than a temperature decrease width.

Claim 55 (Cancelled).

56. (Currently Amended) The charge removing unit of claim ~~55~~ 53, further comprising an ion generator for generating and applying ions to neutralize the electric charge, said ion generator being located opposite the charge appearance semiconductor substrate at said cooling device.

57. (Previously Presented) The charge removing unit of claim 56, further comprising a wafer holding part including holding hooks for holding the charge appearance semiconductor substrate, and for transferring the charge appearance semiconductor substrate to said heating and cooling apparatus, said wafer holding part and said holding hooks having an insulating material-coated portion whereat the ions generated by said ion generator are applied.

58. (Currently Amended) The charge removing unit of claim ~~55~~ 53, further comprising a gas supply device for supplying gas to the charge appearance semiconductor substrate at said bump bonding stage to eliminate the electric charge, said gas supply device being connected to said bump bonding stage, wherein said controller is further operable to control said gas supply device in a manner to remove the electric charge.

Claim 59 (Cancelled).